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CARLSON, GASKEY & OLDS, P.C.
400 WEST MAPLE ROAD
SUITE 350
BIRMINGHAM, MI 48009

EXAMINER	
KIM, CHONG HWA	
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BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Application Number: 10/725,885
Filing Date: December 02, 2003
Appellant(s): ESCHENBURG, DALE

John M. Siragusa
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed 11/29/07 appealing from the Office action mailed 6/4/07.

(1) Real Party in Interest

A statement identifying by name the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The statement of the status of claims contained in the brief is correct.

(4) Status of Amendments After Final

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

(5) Summary of Claimed Subject Matter

The summary of claimed subject matter contained in the brief is correct.

(6) Grounds of Rejection to be Reviewed on Appeal

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

(7) Claims Appendix

The copy of the appealed claims contained in the Appendix to the brief is correct.

(8) Evidence Relied Upon

4,468,981	Ries	9-1984
6,770,005 B2	Aikawa et al.	8-2004
5,311,740	Shiba et al.	5-1994

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Claims 1-3, 6, 9-11, 22-24, and 27-29 are rejected under 35 U.S.C. 102(b) as being anticipated by Ries, U.S. Patent 4,468,981.

Ries shows, in Figs. 1-6, an axle assembly comprising: an axle housing 11; a pump housing 112, 114, 115 attachable to cover an opening within the axle housing; a pump 130, 134 mounted within the pump housing, wherein the pump housing includes a cavity 144 or 145 defining a supply passage for communicating lubricant from a sump within the axle housing to the pump; an input shaft 35 supported by the pump housing and driving the pump; wherein the pump supplies lubricant from a sump 12 within the axle housing to a driveline component 161 supported within the axle housing; an annular passage 139 defined within the pump housing surrounding the input shaft; comprising a bearing 38, 39 supporting rotation of the input shaft mounted within the pump housing; wherein the pump comprises a rotor pump; wherein the rotor pump comprises a reversing ring 140 for directing oil flow in a first direction regardless of input shaft rotational direction; and wherein the pump housing comprises a bearing cage (the race for roller bearing 38) supporting rotation of the input shaft, wherein the bearing case is supported entirely within the pump housing independent of the axle housing and spaced an axial distance from the axle housing; including a pinion shaft 47 or 48 supported within the axle housing and driven by the input shaft.

Claims 1-6, 9-11, 22, and 24-28 are rejected under 35 U.S.C. 102(e) as being anticipated by Aikawa et al., U.S. Patent 6,770,005 B2.

Aikawa et al. shows, in Figs. 1 and 2, an axle assembly comprising: an axle housing 11; a pump housing 13 attachable to cover an opening within the axle housing; a pump 93 mounted within the pump housing, wherein the pump housing includes a cavity defining a supply passage (surrounding the shaft 111) for communicating lubricant from a sump within the axle housing to the pump; an input shaft 39 supported by the pump housing and driving the pump; wherein the pump supplies lubricant from a sump 9 within the axle housing to a driveline components supported within the axle housing; an annular passage defined within the pump housing surrounding the input shaft (in the left most housing part that surrounds the shaft 111); wherein the input shaft comprises a lubricant passageway receiving lubricant from the pump and wherein the lubricant passageway comprises at least one outlet passage for distributing lubricant (as shown in Fig. 1 and disclosed in col. 13, lines 38-44); comprising a bearing 55 supporting rotation of the input shaft mounted within the pump housing; wherein the pump comprises a rotor pump (trochoid pump); wherein the rotor pump comprises a reversing ring for directing oil flow in a first direction regardless of input shaft rotational direction (inherent in trochoid pumps); and wherein the pump housing comprises a bearing cage (the races for bearing 55) supporting rotation of the input shaft, wherein the bearing cage is supported entirely within the pump housing independent of the axle housing and spaced an axial distance from the axle housing; including a pinion shaft 25 supported within the axle housing and driven by the input shaft.

Claims 7 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ries in view of Shiba et al, U.S. Patent 5,311,740.

Ries shows, as discussed above in the rejection of claim 1, the axle assembly comprising the axle housing, the pump housing that covers the pump driven by the input shaft, but fails to show a filter housing and a relief valve.

Shiba et al. teaches, in Figs. 1-4, an axle assembly comprising an axle housing 1, a pump housing (the other half of the housing portion 1), a pump P2 mounted within the pump housing, an input shaft 3 to drive the pump, wherein the pump housing comprises a filter housing 25 for attachment of a lubricant filter and wherein the pump housing comprises a relief valve 32 for controlling lubricant pressure emitted from the pump.

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to apply the filter and the relief valve as taught by Shiba et al. in the axle assembly of Ries in order to provide a cleaner lubricant and a better pressure regulated distribution of lubricant in order to make the axle assembly last longer.

(10) Response to Argument

(1) Claims 1-3, 6, 9-11, 22-24, and 27-29 rejected as being anticipated by Ries.

Claim 1

(Note: the appellant's reference to "Siebert" in the argument appears to be a typo. In the context of the argument, "Siebert" should be understood as referring to "Ries")

In response to the appellant's argument that Ries fails to show the required passage within the pump housing, it is the Examiner's view that the supply passages (144 and 145) in the

pump housing (112) as shown by Ries, in Fig. 5, are for communicating lubricant from a sump within the axle housing to the pump. Ries discloses, in col. 5, lines 29-34, that the pump (110) is connected to a suction line (150) (see Figs. 1, 2, and 4) to the sump. The suction line (150) is connected to the supply passage (144) via the fitting (151). Therefore, it is clear that the supply passage (144) is for communicating lubricant from a sump to the pump and the pump (110) is in communication with a sump.

Claim 24

In response to the appellant's argument that Ries fails to show the bearing member supported within the pump housing separate from the axle housing, it is the Examiner's view that Ries does show such configuration. Ries shows, in Fig. 5, the bearing member (38 or 39) being supported within the pump housing (115) separate from the axle housing (11) or (30 as shown in Fig. 5). As far as the appellant's reasoning, that the bearing is not supported separate from the axle housing because the housing member (115) is bolted to the differential carrier (30), it is not logically clear. The appellant's invention shows, in Fig. 6, the pump housing (16) that is bolted to the axle housing (14). And the bearing (30) is supported within the pump housing. It appears that there is no significant difference between the appellant's bearing configuration and Ries'.

Claim 27

In response to the appellant's argument regarding the same subject matter as discussed above under the heading of Claim 1, it is the Examiner's position that Ries shows, in Fig. 5, the pump housing (112) includes an inlet (the entrance of the cavity 144 that is connected to the fitting 151) in communication with a sump (as disclosed in col. 5, lines 29-34) within the axle

housing (11) and a cavity (144) defining a supply passage within the pump housing from the inlet to the pump as recited in claim 27.

Claim 28

In response to the appellant's argument Ries fails to show the pump housing including an elongated section including an inlet and the cavity that defines the supply passage, it is the Examiner's view that Ries shows the elongated section (112 as broadly construed) including the inlet and the cavity. Although Ries does not show exact configuration as the appellant's present invention, the pump housing section (112) meets the definition of being "elongated".

(2) Claims 1-6, 9-11, 22, and 24-28 rejected as being anticipated by Aikawa.

Claim 1

In response to the appellant's argument that one of skilled in the art would not interpret the differential carrier as the pump housing, it is the Examiner's view, as broadly interpreted, the differential housing part (13) as shown in Fig. 1 to be a pump housing. The housing part (13) encloses the pump (93) and includes supply passages in the housing part (13) where the shaft 11 is located (see also, col. 13, lines 38-44). The disclosure in col. 13, lines 38-44 describes that the oil from sump is pumped by the pump (93) and supplied to the hollow connection shaft (111) to the inner shaft (39). Although the disclosure does not describe the cavity, it is shown clearly, if not inherent, the supply passage immediately next to the connection shaft (111) on the left side and in the housing part (13). Therefore, the housing part (13) can be considered to be a pump housing as recited in claim 1.

Claim 24

In response to the appellant's argument that Aikawa et al. fails to show the bearing member supported within the pump housing separate from the axle housing, it is the Examiner's view that Aikawa et al. does show such configuration. Aikawa et al. shows, in Fig. 1, the bearing member (55) being supported within the pump housing (13) separate from the axle housing (11) as recited in claim 24. As discussed above the housing part (13) can be interpreted as being a pump housing.

Claim 27

In response to the appellant's argument that Aikawa et al. fails to show the inlet being in communication with a sump within the axle housing a cavity defining a supply passage within the pump housing from the inlet to the pump, it is the Examiner's view that it is inherently present, if not shown or described by Aikawa et al. Clearly, Aikawa et al discloses, in col. 13, line 38-44, that the pump (93) pumps up the oil from the oil sump in casing (9) and supplied to the inner shaft (39) via the hollow connection shaft (111). Therefore, obviously, there is a fluid flow from the sump to the inner shaft. If there is fluid flow, then it is inherent that there is an inlet and a cavity at some point between the sump and the inner shaft. Furthermore, Fig. 1 shows a "space" or a cavity formed inside the pump housing (or housing part 13) next to the hollow connection shaft (111). Therefore, Aikawa et al. clearly shows the inlet and the cavity formed in the pump housing (13).

Claim 28

In response to the appellant's argument Aikawa et al. fails to show the pump housing including an elongated section including an inlet and the cavity that defines the supply passage, it

is the Examiner's view that Aikawa et al. shows the elongated section (13) including the inlet and the cavity. Although Aikawa et al. does not show exact configuration as the appellant's present invention, the pump housing section (13) meets the definition of being "elongated".

(3) Claims 7 and 8 rejected as being obvious over Ries as modified in view of Shiba.

For the absence of Appellant's argument, there is no response needed from the Examiner.

(11) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

Chk

/Chong H. Kim/

Primary Examiner, Art Unit 3682

Conferees:

Meredith Petravick, Appeals Specialist /mcp/

/Richard WL Ridley/

Supervisory Patent Examiner, Art Unit 3682